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APR 26 2010

Ref: 8EPR-N

Dave Herron, Project Lead
Ashley National Forest
85 West Main, PO Box 981
Duchesne, Utah 84021

Re: Comments on the South Unit Oil and Gas Development Project Draft Environmental Impact Statement
CEQ # 20100051

Dear Mr. Herron:

The U.S. Environmental Protection Agency (EPA) Region 8 has reviewed the Draft Environmental Impact Statement (EIS) for the Ashley National Forest (ANF) South Unit Oil and Gas Development Project (South Unit Project) prepared by the U.S. Department of Agriculture (USDA) Forest Service. Our comments are provided for your consideration pursuant to our responsibilities and authority under Section 102(2)(C) of the National Environmental Policy Act (NEPA), 42 U.S.C. Section 4332(2)(C), and Section 309 of the Clean Air Act, 42 U.S.C. Section 7609. It is EPA's responsibility to provide an independent review and evaluation of the potential environmental impacts of this project, which includes a rating of the environmental impact of the proposed action and the adequacy of the NEPA document.

In accordance with our policies and procedures for reviews under NEPA and Section 309 of the Clean Air Act, EPA has rated this Draft EIS as "Environmental Objections - Insufficient Information" (EO-2). Our primary environmental concerns include potential air quality impacts, protection of water resources, and impacts to sage-grouse habitat. Additional information needed to ensure that environmental effects are properly evaluated in accordance with NEPA particularly include: project alternatives; air quality impacts and proposed mitigation measures; and water resource characterization and protection. EPA's concerns with the content of and potential environmental impacts described in the Draft EIS include additional concerns described in this letter and the enclosed Detailed Comments. A copy of EPA's rating criteria is attached.

PROJECT BACKGROUND

Berry Petroleum Company (Operator) proposes to drill up to 400 conventional oil and gas wells on the company's existing federal mineral leases in the South Unit of the ANF in Utah. The project area encompasses approximately 25,900 acres and is located 11 miles south of Duchesne, Utah. The proposal for 400 wells represents a full development scenario. Wells are

expected to be drilled on 40-acre downhole spacing in the northern portion of the project area, with 160-acre downhole spacing anticipated in the southern portion where oil and gas potential is believed to be lower. Additional proposed project components include approximately 100 miles of new access roads, upgrading of 21 miles of existing roads, 100 miles of gas gathering pipelines, and four 2,500 horsepower compressor stations. Between 10 and 50 wells may be drilled each year, for a 5- to 20-year construction and drilling phase. The total life of project is 55 years.

Along with the Operator's Proposed Action (Alt. 2), the Draft EIS considers a no action alternative and two additional action alternatives in detail. The No Action Alternative (Alt. 1) would not authorize any additional oil and gas exploration or development in the project area. Previously approved activities – which include 30 existing wells, and 39 miles of roads – would continue. The Phased Drilling Alternative (Alt. 3) includes all of the components of the Proposed Action, but requires a phased approach for development. Each phase could be up to 10 square miles (6400 acres) in size, and the operator would move systematically across the project area over the 5- to 20-year drilling period, to minimize impacts on wildlife and soil resources. A plan of development (POD) would be submitted by the operator and approved by the Forest Service for each phase. The Preferred Alternative (Alt. 4) limits surface development to a maximum of 162 well pads. Downhole well spacing would not be limited and it is anticipated that the maximum development scenario of 400 well bores would be drilled. Only 76 miles of new access road are required, and 53 miles of gathering pipelines, all of which will be co-located in the access road rights-of-way (ROWs). All action alternatives include the design elements and mitigation measures identified in the Decision Notice and Finding of No Significant Impact for the 2006 Environmental Assessment for Berry Petroleum's Exploration and Development Project in the ANF.

EPA CONCERNS

An explanation of our primary concerns with the project is contained in the following comments. Our primary concerns include: preferred alternative selection; components of the no action alternative; air quality; protection of water resources; potential impacts to sage-grouse; and jurisdiction within the project area. Further details on these issues, as well as additional detailed concerns pertaining to the project, are found in the enclosed Detailed Comments.

Alternative Selection

EPA is pleased with the selection of Alternative 4, the reduced surface disturbance alternative, as the Preferred Alternative for the proposed Project. However, EPA recommends that the Forest Service consider incorporating into the Preferred Alternative many of the excellent protective measures proposed in the Phased Drilling Alternative. Phased drilling reduces surface disturbance exposed at any one time and minimizes wildlife impacts. The additional best management practices (BMPs) proposed for consideration in the Phased Drilling Alternative should also be incorporated into, and required for, the Preferred Alternative. Particularly, we note that drilling multiple wells on an individual well pad (already part of the Preferred Alternative), centralized production facilities, closed loop drilling, and minimizing

topsoil removal during drilling activities alleviate many of EPA's primary concerns typically associated with oil and gas development.

EPA notes that the Final EIS and Record of Decision (ROD) must be clear regarding the number of wells and pace of development authorized as part of this action. Any change to the number of wells (either total number or wells per year) would require additional NEPA compliance and air quality analyses.

No Action Alternative

EPA understands that 25 wells originally included in the Operator's plan for development in the ANF South Unit have been authorized by Categorical Exclusion under the Energy Policy Act of 2005. These wells were approved in 2009, and development will likely occur before completion of the NEPA process for the proposed South Unit Project. Because development of these additional 25 wells will occur regardless of the outcome of the NEPA process for the proposed project, they should be incorporated into the No Action Alternative. Discussion of the No Action Alternative in the Final EIS should include the 25 additional wells and all associated facilities, with an explanation of their origin. Further, discussion of the action alternatives should make clear whether development of 400 or 375 additional wells is under consideration in this EIS.

Air Quality

Given recent air quality measurements at four air monitoring sites within the Uinta Basin, air quality is an increasingly important issue for the South Unit Project. Preliminary air quality measurements in the Uinta Basin have recently shown elevated concentrations of both particulate matter ($PM_{2.5}$) and ozone. Consequently, we are concerned with how the South Unit Project will impact these pollutants within the Basin. EPA therefore believes that omission of values for $PM_{2.5}$ and ozone from the table of background ambient air quality concentrations (Table 3-3) is not appropriate given the current level of regional concern. We recognize the challenge in obtaining local monitoring data for $PM_{2.5}$ and ozone; however, background concentrations are critical to accurately predicting impacts to these pollutants of concern. We recommend that the Forest Service use values obtained in the past year at newly installed monitors in the Basin if possible, or else use values from Canyonlands National Park, which is the nearest site where validated data can currently be obtained.

Regarding the discussion of ozone (Section 3.2.2.3.5 under Environmental Consequences), EPA must object to some of the language used in the Draft EIS. EPA does not agree that "quantitative ozone modeling is not appropriate for this scale of development" as is suggested on pg. 70. The potential for impact from oil and gas development does not depend upon number of wells alone. Many factors, including existing ambient air conditions, density of development, pace of development, proximity of sensitive areas, and emission reduction measures implemented during development and production, are relevant to whether a project may have potential for air quality impacts. A 400-well project does have potential to cause or contribute to significant impacts to ambient ozone concentrations. For the South Unit Project,

EPA did work with the Forest Service during the scoping phase, to recommend appropriate mitigation measures to minimize ozone impacts. Neither EPA nor the Forest Service was aware of the ozone conditions in the Uinta Basin during the scoping phase for this project. At that time, EPA agreed that aggressive mitigation and monitoring to minimize ozone impacts, combined with a qualitative ozone analysis, could allow the Forest Service to reasonably conclude that no significant impact would occur due to this particular project.

To address EPA's concerns regarding recent elevated measurements of ozone in the Uinta Basin, the Forest Service should strengthen the analysis of ozone impacts in the Final EIS. Specifically, a table should be prepared that presents the overall ozone precursor (NOx and VOCs) emission reductions achieved from the mitigation measures identified in Section 2.2.5. This table should clearly present, by source category, controlled and uncontrolled emissions. The table should also detail the total project controlled and uncontrolled emissions and associated emission reductions. These emission figures should be presented in a consistent form relevant for comparing to other emission sources, such as tons per year, and be made available for other future project cumulative ozone analysis work. The emissions table summary should be performed for each alternative for comparison purposes. Further, we recommend the Forest Service use the results of this calculation to more clearly explain in the Final EIS why the South Unit Project will not cause significant ozone impacts.

Given recent ambient concentrations of ozone measured in the project area, which exceed the National Ambient Air Quality Standards (NAAQS), the EIS should identify the project's contribution to this serious problem. The EIS cannot do this with the level of information currently presented in the Draft EIS. The additional analysis recommended above will allow a qualitative prediction of the significance of potential impacts to ozone in the Final EIS. If the project has potential to significantly contribute to ozone in the Uinta Basin, we recommend that ozone modeling be considered to more accurately quantify predicted contributions before proceeding to the Final EIS. We note that, where mitigation measures are relied upon to ensure that ozone precursor emissions will not contribute significantly to air quality concerns, operator compliance with those mitigation measures must be guaranteed. Please describe in the Final EIS and ROD how mitigation compliance will be ensured. Adaptive management should be used to ensure that project contributions to air quality impacts do not exceed those predicted in the EIS. Our recommendations for a monitoring and mitigation strategy to be developed for both $PM_{2.5}$ and ozone are described in the enclosed Detailed Comments.

Protection of Water Resources

The protection of groundwater and surface waters are key issues to address in oil and gas development. Surface water in the project area is already not supporting or only partially supporting its designated use for agriculture due to exceedance of standards for Total Dissolved Solids (TDS). EPA therefore considers impacts to surface water from sediment runoff as a significant concern for the proposed project. Our recommendations for mitigation and monitoring to reduce impacts to surface water quality are provided in the enclosed detailed comments. EPA has several concerns with the proposed project with regard to protection of groundwater resources. Sources of drinking water are vital to small towns and cities, which

cannot afford treatment if their water source becomes contaminated. Characterization of the location and quality of groundwater resources present in the project area is critical to understanding potential for impact, as well as monitoring to ensure prevention of future impact. Although the Draft EIS briefly describes the major aquifers and superficial deposits, significantly more detail characterizing groundwater resources is needed and should be provided in the Final EIS. EPA request this additional information include a stratigraphic column, the location of any wells in the project area, and chemistry and well yield data for water bearing formations. We further recommend that Drinking Water Source Protection (DWSP) zones in the project area be identified.

The discussion of potential groundwater impacts in the Draft EIS is minimal, and no discussion of monitoring or mitigation is provided. A monitoring plan and program should be developed to track any groundwater impacts as drilling and production operations occur. Mitigation measures should be developed and implemented for this project to protect surface and ground water zones. EPA also recommends the Final EIS include further detail and clarification on the proposed produced water management. These recommendations are explained further in the enclosed detailed comments.

Impacts to Sage-Grouse

Since the preparation of the Draft EIS, the U.S. Fish and Wildlife Service (FWS) has announced that the greater sage-grouse has been designated a candidate for listing as endangered or threatened (U.S. Fish and Wildlife Service, "Endangered and Threatened Wildlife and Plants; 12-Month Findings for Petitions to List the Greater Sage-Grouse (Centrocercus urophasianus) as Threatened or Endangered," http://www.fws.gov/mountain-prairie/species/birds/sagegrouse/FR03052010.pdf). The FWS rationale for the Candidate designation is that "listing the greater sage-grouse (rangewide) is warranted, but precluded by higher priority listing actions." The discussions of the grouse and of federally listed wildlife species should be revised in the Final EIS to reflect its change in status and to address the Candidate designation in all pertinent regulatory respects.

Due to the extent of sage-grouse presence in the project area, EPA considers protection of important sage-grouse habitat to be a significant concern for the South Unit Oil and Gas Development Project. Further explanation of our concerns and recommendations are provided in the enclosed Detailed Comments.

Jurisdiction

It appears that the general project location is largely or entirely on National Forest lands within the Uintah Valley part of the Uintah and Ouray Indian (U&O) Reservation, and therefore in Indian country according to applicable case law. Accordingly, the EIS should accurately reflect that the proposed project will be located largely or entirely in Indian country. EPA has not approved the State of Utah or the Ute Indian Tribe to implement federal environmental programs in Indian country. Thus, for all locations on Indian country lands within the U&O Reservation, EPA is the appropriate governmental authority to issue federal environmental

permits, conduct inspections, take enforcement actions, and take any other actions pursuant to our statutes and authorities. References to Utah Department of Environmental Quality (UDEQ) permits in the document should be revised. Similarly, the National Historic Preservation Act (NHPA) consultation discussion should reference consultation with the designated representative of the Ute Indian Tribe along with the State Historic Preservation Office (SHPO). We note that the Bureau of Indian Affairs (BIA) has particular expertise as to Indian country questions. You may wish to consult with BIA on the status of the project location.

Thank you for the opportunity to comment on this Draft EIS. We hope that our comments will be of value to the Forest Service in preparing the Final EIS. If you have any questions on the comments provided in this letter, please contact me at 303-312-6004, or you may contact Molly Brodin of my staff at 303-312-6577.

Sincerely,

Larry Svoboda
Director, NEPA Compliance and Review Program
Office of Ecosystems Protection and Remediation

Enclosures: Detailed Comments
EPA's Rating System Criteria

cc: Bill Stringer, Green River District Manager, BLM
Daniel Picard, U&O Agency Superintendent, BIA

EPA'S DETAILED COMMENTS FOR THE SOUTH UNIT OIL AND GAS DEVELOPMENT PROJECT DRAFT EIS

Alternative Selection

We recommend that the Forest Service reconsider the possibility of incorporating a surface disturbance cap into the Preferred Alternative. According to the Draft EIS, a cap on surface disturbance was not carried forward for detailed analysis because the alternatives considered already contain limitations for surface disturbance. However, a cap on surface disturbance increases interim reclamation efforts and reduces the amount of disturbed soil at any one time, minimizing impacts to water quality and wildlife. EPA recognizes that other more active management strategies may be more effective at targeting and minimizing particular impacts than solely relying upon a surface disturbance cap. Consequently, we recommend that the Forest Service consider how the valuable components of a cap on surface disturbance can be incorporated and enforced in the Preferred Alternative through phased drilling, such as establishing interim reclamation requirements for each phase.

Air Quality

Given recent air quality measurements at four air monitoring sites within the Uinta Basin, air quality is an increasingly important issue for the South Unit Project. Preliminary air quality measurements in the Uinta Basin have recently shown elevated concentrations of both $PM_{2.5}$ and ozone. EPA is concerned that the proposed project has potential to contribute to significant impacts to $PM_{2.5}$. The background concentration for $PM_{2.5}$, from one of two sources recommended in EPA's cover letter, should be included in the modeling assessment to accurately determine if the predicted increment is likely to lead to $PM_{2.5}$ concentrations above the NAAQS. Additionally, we note that, given the recent preliminary ozone measurements, the statement in the Draft EIS that "current ozone concentrations… are well below the NAAQS" is inaccurate; the footnote to Table 3-3, which states that the closest ozone data available has an 8-hour average background concentration of 0.074 ppm also does not support the statement.

EPA is not a cooperating agency on the South Unit Project; however, we did work with the Forest Service informally during the scoping phase for the Project to address the ozone impact assessment for the project. EPA does not agree that "Modeling impacts to ozone concentrations from a project of this size is not recommended because the project contributions are unlikely to be noticeable," as is suggested in the Draft EIS (pg. 70). We do agree that a quantitative ozone analysis combined with aggressive mitigation of ozone precursors and ozone monitoring could allow the Forest Service to reasonably conclude that ozone impacts from the project are not significant. We note that, as EPA's only role in NEPA process for the South Unit Project is to provide independent review under NEPA and CAA §309, it is inaccurate to state that "the EPA and the Forest Service are requiring the Operator to implement the emissions reduction measures." EPA can recommend emission reduction measures for a project during the NEPA process.

NEPA requires disclosure of all direct and indirect impacts where there is potential for a

project to result in significant impact to a resource. Where it can be qualitatively demonstrated that no significant impact will occur, it is reasonable for a federal agency to avoid the extra costs associated with a detailed quantitative assessment of direct and indirect impacts. We appreciate the VOC and NOx emission reduction measures that have been proposed in the Draft EIS for the South Unit Project to minimize ozone impacts. However, the Forest Service's conclusion that the proposed project will not cause significant ozone impact should be more clearly explained in the Final EIS to reasonably proceed without quantitative ozone modeling. We also note that, while the proposed list of required air quality mitigation measures is already more than commonly applied to oil and gas development projects, there are additional opportunities for VOC and NOx emissions reductions. These potential additional mitigation measures may include:

- Reducing pace of development;
- Using Tier III or higher drilling rig engines;
- Upgrading pump jack engines to meet all future New Source Performance Standards or electrifying pump jacks;
- Installing a liquids gathering system for produced water and condensate fluids;
- Using a Centralized Automation System to transmit information to a centralized location for monitoring and controlling gas operations, which will reduce mobile source traffic in the field; and
- Using emission controls on all produced water tanks, and reducing use of all produced water holding ponds.

We also recommend that the Forest Service look at EPA's Natural Gas STAR Program (http://www.epa.gov/gasstar/) and the Four Corners Task Force Recommendations (http://www.nmenv.state.nm.us/aqb/4C/Docs/4CAQTF_Report_FINAL_OilandGas.pdf) for additional mitigation measures.

The Draft EIS suggests that leak detection and ozone monitoring would "mitigate impacts to air quality" (pg. 71). We suggest that the Forest Service explain more clearly what is meant by this statement in the Final EIS. We recommend that the air quality chapter of the document reference Section 2.2.5 – Mitigation Common to All Alternatives, which contains many relevant mitigation measures, as well as a detailed explanation of the proposed leak detection program. Given our concerns with recently measured elevated levels of $PM_{2.5}$ and ozone, we recommend including a more comprehensive discussion of how leak detection and monitoring, which should include $PM_{2.5}$, would be used to mitigate air quality impacts. This discussion should include trigger points and additional mitigation measures that will be incorporated in case a problem is identified, similar to an adaptive management plan. We additionally recommend that the Forest Service consider additional unpaved road treatment such as the application of chemical dust suppressant agents and reducing vehicular speeds, which may be effective in mitigating the particulate matter impacts. We note that the dust plan developed in the recent programmatic agreement for the West Tavaputs Plateau Development is a good source of information on locally-relevant dust suppression alternatives (http://www.blm.gov/pgdata/etc/medialib/blm/ut/price_fo/Oil_Gas.Par.63679.File.dat/WTP_FINAL_PA(010610).pdf). Additional innovative or uncommon mitigation measures may need to be used if the proposed emission reduction

measures are not enough to qualitatively demonstrate that no significant impact is anticipated from the South Unit Project. We recommend that the Forest Service use the Council on Environmental Quality (CEQ) "Draft Guidance for NEPA Mitigation and Monitoring" (http://ceq.hss.doe.gov/current_ developments/new_ceq_nepa_ guidance.html) as a reference for the expanded discussion. Measures to ensure compliance with proposed mitigation techniques should be provided in the Final EIS and the ROD.

A summary of the Uinta Basin Air Quality Study (UBAQS) was included in the Draft EIS to satisfy the need for disclosure of cumulative impacts to air quality under NEPA. EPA has consistently recognized that there were important shortcomings in the UBAQS modeling protocols that will need to be improved to meet the provisions of NEPA. Particularly, we note that the purpose of UBAQS was not clearly defined. The output was for the years 2006 and 2012 only, while for NEPA purposes analysis of the cumulative impacts should be based on the maximum emission year during the life of the project. Additionally, EPA has not reviewed the emissions inventory used for UBAQS, and does not know how completely and accurately it captures predicted future development in the Basin, or if the South Unit Project is included. Given our significant concerns with UBAQS, as well as the fact that 2012 is now only two years away and will not be the maximum emission year for the South Unit Project, we question the value of including the findings of this study in the Draft EIS.

Air Quality Related Values

EPA has concerns regarding potential impacts to air quality related values (AQRV) for the proposed project. We note that the CALPUFF modeling results presented in the Draft EIS show that cumulative impacts to Class I areas include Nitrogen deposition above the Forest Service Deposition Analysis Threshold (DAT) at five Class I areas. While direct project emissions are not exceeding DATs, the South Unit Project is contributing incrementally to a cumulative adverse impact. We recommend that the Forest Service take this into consideration when considering mitigation measures that would reduce Nitrogen, such as NOx emissions controls. EPA is additionally concerned that direct project impacts are predicted to result in visibility impacts at several sensitive Class II areas, according to Appendix H. Inclusion of further mitigation measures to reduce these adverse impacts is recommended. We note that the new 1-hour NO_2 NAAQS was not addressed in the Draft EIS. We recommend that the 1-hour NO_2 air impact analysis be included if reasonably possible.

Water Resources – Groundwater Source Protection

The protection of groundwater and surface waters are key issues to address in oil and gas development. EPA has several concerns with the proposed project with regard to protection of groundwater resources. We recommend that the characterization of the location and quality of groundwater resources be expanded beyond major aquifers and superficial deposits. Full characterization of potential groundwater features is necessary to understand the potential for impacts from the South Unit Project. The Final EIS should include a stratigraphic column that depicts the location of water bearing formations and their relationship to the production zone(s). A description of the viability of these water bearing formations as underground sources of

drinking water is also needed, which should include chemistry and well yields. A list of domestic and stock wells within one mile of the project area should be included in the Final EIS as well, and any public water supply wells within 5 miles should be indentified. If public water supply wells exist within the 5 mile border of the project area, then the water quality information of those supply wells should be included. The description of groundwater resources should identify the depths of the wells and what formations they are producing from. Any DWSP zones in the project area should be identified. We recommend that the Forest Service analyze the GIS information for DWSP zones, and present the results of this analysis in the Final EIS. Any municipalities with DWSP zones in the project area should be contacted. The Draft EIS states that the primary source of groundwater recharge in the area is snowmelt from higher elevation. Please make clear in the Final EIS whether any well pads are located in recharge zones.

An attempt to identify the quality of the groundwater should be included in the Final EIS as well as the known geochemistry of the individual fresh water bearing zones. The draft document references a 1973 study with respect to local groundwater quality, stating that "current groundwater quality data was not available." We note that current groundwater quality is necessary to establish a baseline condition on which to assess possible future impacts. We recommend the Final EIS provide baseline data on the condition and quality of groundwater before drilling. This evaluation should include any evidence of hydrocarbon impacts. We recommend the Forest Service contact the Utah Department of Environmental Quality (UT DEQ) to determine if any monitoring wells exist in the area. A monitoring well grid should be installed if there is not a current well system adequate for baseline monitoring already in place. We recommend the Forest Service develop a monitoring plan and program to track any groundwater impacts as drilling and production operations occur. Monitoring should be conducted during all project phases, including: background conditions before construction begins; during project implementation, including both construction and production; and after project termination.

Mitigation measures should also be developed and implemented for this project to protect surface and ground water zones. Some recommended mitigation measures include:

- All pits should contain synthetic liners and be padded as necessary to prevent tearing or puncturing of the liner and fluid migration to the subsurface.
- Closed-loop drilling should be considered, particularly for sites in sensitive areas such as those near stream channels.
- Surface casing should be installed below all fresh water zones (underground sources of drinking water) especially if there are groundwater wells nearby.
- Production casing and cement should be adequate to prevent fluid movement between formations with fluids (including gas) of different quality.
- Forest Service should conduct an area of review for existing production wells or plugged and abandoned wells to assess whether structures possess adequate construction that prevents fluid movement within the casing/well bore annulus.

Additional mitigation measures beyond those suggested here may be appropriate for the South Unit Project; the Final EIS should identify all relevant and reasonable mitigation measures to

protect groundwater sources, even if they are outside of the jurisdiction of the Forest Service. We recommend that the Forest Service consult the CEQ's "Draft Guidance for NEPA Mitigation and Monitoring" in developing the groundwater protection plan.

EPA agrees with the Forest Service that hydraulic fracturing could potentially result in groundwater impacts by forming fractures in confining units. Additionally, some hydraulic fracturing compounds contain materials that could be harmful if released to freshwater sources. An analysis of the management of the fracturing fluids should be provided in the Final EIS, including the toxicity and fate of these fluids, with a focus on avoiding surface spills or leaks of these fluids from the reserve pits. Hydraulic fracturing of any production zones near freshwater zones should not be considered. This includes fracturing production zones that are not adequately separated from freshwater aquifers with zones with low permeability that would prevent fluid and gas migration.

EPA also recommends the Final EIS include further detail and clarification on the proposed produced water management. We request the document describe specific uses planned for the 70% of produced water proposed for reuse, and explain in more certain terms where the remaining 30% of the water will be sent. The decision to avoid surface evaporation pit or well disposal may resolve many of EPA's concerns regarding potential impacts to air quality, water quality, and aquatic wildlife from on-site produced water surface impoundments.

Water Resources – Surface Water Quality

EPA considers impacts to surface water from sediment runoff as a significant concern for the proposed project. Surface water in the project area is already not supporting or only partially supporting its designated use for agriculture due to exceedance of standards for Total Dissolved Solids (TDS). TDS is a concern in both the watersheds affected by the project, Upper Pariette Draw and Antelope Creek.

A Total Maximum Daily Load (TMDL) to address a TDS impairment was approved by EPA for the Duchesne River Watershed including Antelope Creek in 2007. There are no point sources in the Antelope Creek watershed (which includes 98% of the project area) and all loading is from nonpoint sources. Oil and gas activities are the leading contributor to the TDS loadings in the Antelope Creek watershed, likely from the many dirt roads and well pads that have been built through the years. The TMDL calls for reductions in these nonpoint source loads to ensure attainment of the water quality standard in the watershed and apportions the available load to the sources that were identified at the time the document was prepared. This project represents a significant new nonpoint source in a primarily road-less area and will result in exacerbation of the impairment that the TMDL was written to address (the development of the South Unit Project is expected to increase TDS loading through increased sedimentation and runoff). We request that the Forest Service expand the cumulative impacts discussion for surface water quality to more fully explain how the project may contribute to TDS loadings in the Antelope Creek watershed.

EPA is pleased with the selection of Alternative 4 as the Preferred Alternative due to its reduced surface disturbance relative to the Operator's Proposed Alternative. However, we

recommend that additional steps be taken to further minimize erosion and sedimentation for watershed protection. First, we recommend that the Forest Service reconsider a cap on acres of surface disturbance, which was not carried into the Draft EIS for detailed analysis. Placing a limit on the maximum number of acres of surface disturbance allowed in the project area at any one time can significantly limit TDS loading by increasing interim reclamation efforts and decreasing the amount of disturbed soils. Second, we recommend that phased drilling be considered for the proposed action, which will also effectively reduce the amount of surface disturbance present at any time. Finally, EPA recommends that the Forest Service consider further reducing construction of roads or well pads in drainages. Although we are pleased that the Preferred Alternative reduces the miles of stream disturbance, we are very concerned that 5.3 acres of stream disturbance are still anticipated for the project. To reduce TDS loading, directional drilling should be used to access mineral resources within drainages wherever possible, and roads and well pads should be sited outside of these sensitive zones. We recommend coordination with the U.S. Army Corps of Engineers (USACE) if a Clean Water Act (CWA) Section 404 permit will be required for discharge of dredged or fill material into Waters of the U.S.

EPA recommends the Forest Service implement a comprehensive water monitoring plan to ensure the BMPs are successfully mitigating the impacts from increased sedimentation. At a minimum, we recommend that the Forest Service establish a monitoring program in Antelope Creek and Sowers Creek. EPA looks forward to the Forest Service establishing an effective monitoring program and utilizing the results from those monitoring efforts to direct reclamation resources and efforts.

It is best to involve a system of BMPs that targets each stage of the erosion process to ensure success from construction activities. The most efficient approach involves minimizing the potential sources of sediment from the outset. This means limiting the extent and duration of land disturbance to the minimum needed, and protecting surfaces once they are exposed. BMPs should also involve controlling the amount of runoff and its ability to carry sediment by diverting incoming flows and impeding internally generated flows. In addition, BMPs should include retaining sediment that is picked up on the project site through the use of sediment-capturing devices. On most sites successful erosion and sedimentation control requires a combination of structural and vegetative practices. Finally, BMPs are best performed using advance planning, good scheduling and maintenance.

It is implied in the Draft EIS that water needed for development activities will be obtained from the Petroglyph Operating Company Water plant and/or the Arcadia Feedlot. The Forest Service therefore concludes that impacts to surface or groundwater in the project area due to freshwater consumption would be minimal; however, more detail regarding water use is needed to support this conclusion. Please include additional information regarding freshwater sources, estimated consumption, and water transport plans for the proposed project. A map showing where freshwater sources would be obtained and how they would be transported to the project area would be helpful.

Wetlands

The Draft EIS states that Sowers Creek is the only perennial stream in the project area. According to ANF vegetation data, 121 acres of riparian habitat occur in the project area along Sowers Creek, and it is the only stream that contains wetland characteristics and riparian habitat. The document notes that there are additional wet areas with hydric vegetation that do not necessarily meet all of the definitions of jurisdictional wetlands associated with springs and seeps in the project area. However, it does not appear that a CWA jurisdictional determination has been performed by the USACE for the proposed project.

EPA considers the protection, improvement, and restoration of wetlands and riparian areas to be a high priority. We note that Executive Order (EO) 11990 – Protection of Wetlands states in pertinent part "Section 1. (a) Each agency shall provide leadership and shall take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities for (1) acquiring, managing, and disposing of Federal lands and facilities; and (2) providing Federally undertaken, financed, or assisted construction and improvements; and (3) conducting Federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulating, and licensing activities. (b) This Order does not apply to the issuance by Federal agencies of permits, licenses, or allocations to private parties for activities involving wetlands on non-Federal property." The Draft EIS states that Sowers Creek will be avoided, and therefore no significant impacts to wetlands or riparian areas are anticipated. EPA recommends that further information regarding commitment to avoidance be included in the EIS. For example, will Sowers Creek be avoided by all facilities, including roads and pipelines, or by well pads only? How wide of an avoidance margin will be required? Further, we recommend that avoidance be extended to all wetlands, pending a CWA jurisdictional determination. EPA recommends that wetlands of all sizes should be avoided, not only those greater than 40 acres in size that are protected by lease stipulations. We note that the Forest Service should minimize impacts associated with crossing of drainages in accordance with EO 11990, even when Clean Water Act permitting is not required. Estimated stream crossings should be included in the Final EIS, as well as proposed mitigation measures for any unavoidable impacts.

Sage Grouse

According to the Draft EIS, there is one sage-grouse lek located immediately adjacent to the proposed project and three additional leks within two miles of the project area; 4,184 acres of the project area occur within 2 miles of an active lek. There is additionally 1,379 acres of sage-grouse brooding habitat in the southwestern portion of the project area and 4,746 acres of sage-grouse winter habitat located along several southwest/northeast-running ridgelines in the project area. Due to the extent of sage-grouse presence in the project area, EPA considers protection of important sage-grouse habitat to be a significant concern for the South Unit Oil and Gas Development Project.

FWS has pointed to habitat destruction and fragmentation occurring as a result of infrastructure related to energy projects and direct displacement by energy development as

threats to sage-grouse. Likely impacts to sage-grouse from the proposed project include loss of habitat, avoidance of anthropomorphic-influenced areas, increased predation, increased exposure to West Nile virus, and increased human activity. Impacts to important habitat areas may be serious enough to cause abandonment. As noted in the Draft EIS, maintaining large, continuous tracts of suitable habitat is likely to be critical to the sustainability of greater sage-grouse populations. EPA is particularly concerned that 80% of the sage-grouse habitat in the project area will be lost in the Preferred Alternative (including the 0.25-mile buffer around roads where the Forest Service assumes habitat will be devalued enough to cause avoidance). Removal of sagebrush habitat throughout the West leads to a significant cumulative impact on the Greater Sage-grouse.

CEQ regulations require that the "environmental consequences" section of an EIS address "[p]ossible conflicts between the proposed action and the objectives of federal, regional, state, and local . . . land use plans, policies and controls for the area concerned" (40 C.F.R. § 1502.16(c)). Consistent with these requirements, the Final EIS should fully explore possible conflicts and inconsistencies between the proposed action and sage-grouse-related plans and policies. The Forest Service has concluded that proposed project activities may affect individual greater sage-grouse but would not cause a loss of viability to the population. This determination is based on a significance threshold of less than 20% disturbance to habitat within the portion of the ANF South Unit east of US 191. We recommend that the Final EIS fully explain the reasons for this significance threshold, particularly in the context of the Candidate designation.

EPA appreciates the mitigation measures that have been proposed in the Draft EIS to protect leks and brooding habitat during critical seasons. We recommend that the Forest Service consult with FWS regarding additional mitigation measures that may be warranted considering the Candidate designation. Further, we recommend that complete avoidance of surface occupancy in critical sage-grouse habitat be considered for the proposed project, including establishment of roads, pipelines, and well pads.

National Historic Preservation Act

The Draft EIS states that the Forest Service will consult with affected Native American tribes regarding impacts to cultural resources, as required by the National Historic Preservation Act. Please state which tribes have been contacted during this process and how these tribes were selected for consultation. (The list in Section 4.1.3 identifies the Northern Ute Indian Tribe and four entities associated with that tribe as participants in scoping. If the Northern Ute Tribe is the only tribe determined to be potentially affected, the EIS should so state. Similarly, throughout the document there are references to "concerned tribes" or "affected tribes." In the final document, these references should be more specific.)

Climate Change

EPA recommends that EISs include an analysis and disclosure regarding climate change. We generally suggest the following four step approach:

1. Discuss projected regional climate change impacts relevant to the action area, consider any future needs and capacity of the proposed action to adapt to projected climate change effects, and if appropriate, identify effects from the action that may be exacerbated by projected climate change.
2. Characterize and quantify the expected annual and total project lifetime cumulative greenhouse gasses (GHGs).
3. Briefly discuss the link between GHGs and climate change and the potential impact of climate change.
4. Discuss potential means to mitigate project-related emissions.

EPA appreciates the discussion of global concerns regarding climate change in the Draft EIS, and the disclosure of expected yearly CO_2 Equivalent emissions. We are particularly pleased that expected annual GHG emissions have been put in a relevant context in Table 3-14 by comparing to statewide and national emissions. However, we recommend that expected total project lifetime cumulative emissions of GHGs be quantified and included in the Final EIS, and placed in a relevant context. Further, we recommend that a discussion of potential means to mitigate project-related emissions be included in the Final EIS. The potential impacts of climate change on the proposed project should also be addressed, as described in (1) above, particularly if any potential impacts from the proposed action may be exacerbated by climate change.

Jurisdiction

As noted above, it appears that the general project location is largely or entirely on National Forest lands within the Uintah Valley part of the Uintah and Ouray Indian (U&O) Reservation, and therefore in Indian country according to applicable Tenth Circuit precedent. *See Ute Indian Tribe v. Utah*, 773 F.2d 1087, 1090 (10th Cir. 1985) (en banc), *cert. denied*, 479 U.S. 994 (1986) ("We therefore conclude that the Uintah Reservation was not diminished by the withdrawal of the national forest lands."); *Ute Indian Tribe v. Utah*, 114 F.3d 1513, 1528 (10th Cir. 1997), *cert. denied*, 522 U.S. 1107 (1998) (affirming that U.S. Supreme Court had not altered 10th Circuit's prior holding as to the national forest lands). Accordingly, the EIS should accurately reflect that the proposed project is largely or entirely located on Indian country lands within the U&O Reservation, and should identify the appropriate permitting agencies consistent with Indian country status.

Statements and depictions that should apparently be revised include:

- Figure 1-1 (shows Reservation boundary ending at National Forest)
- Table 1-1 (apparently inapposite references to UDEQ permitting, and to *Indian Country, U.S.A., Inc. v. Oklahoma Tax Comm'n*, 829 F.2d 967 (10th Cir. 1987) as relevant authority; also, omission of EPA as appropriate permitting authority).
- § 3.11.1.18 ("In 1905, President Theodore Roosevelt removed 1,004,285 acres from the reservation and transferred them to the Uinta National Forest." Also, "1905, when the South Unit was removed from the reservation . . . .")
- § 3.11.2.8 ("The NHPA also requires the Forest Service to provide the Utah State Historic Preservation Officer (SHPO) an opportunity to comment on the proposal

and consult with concerned Native American tribes prior to project implementation.") This language is not wholly consistent with the relevant NHPA regulation at 36 C.F.R. § 800.2(c)(2)(i)(B), which provides that where there is no THPO the agency must consult with a designated tribal representative in addition to the SHPO.

- §§ 3.15.2.1.2 and 3.15.2.1.3 ("the Uintah and Ouray Indian Reservation boundary to the north")
- § 3.15.2.3.5 (Discussion should make clear that "Reservation lands" encompass the "Forest Service-administered public lands.")
- Appendix A (Master plan refers only to SHPO consultation and not to consultation with Ute Tribe representative.)

Environmental Justice

The Council of Environmental Quality's (CEQ) guidance on considering Environmental Justice (EJ) under NEPA requires federal agencies to consider "whether there may be disproportionately high and adverse human health or environmental effects on minority populations, low-income populations, or Indian tribes." The CEQ guidance does not provide a specific format or list of criteria to reference in performing this analysis. The Draft EIS (pg. 248) states that "None of the communities within the study area are considered environmental justice communities because their minority populations do not exceed 50%." EPA recommends that the Forest Service revise and elaborate on this statement to better reflect the CEQ guidance. First, we note that, since 50% minority is not an established criterion to determine whether EJ communities are present, the grounds for determining that minority populations are not significant enough to warrant specific EJ consideration need to be more fully described. Second, please revise the statement to make it clear that it is only with respect to minority populations that the Forest Service has determined that EJ is not a potential concern for this project. The presence of low-income populations or Indian tribes should be considered as well in determining whether potential disproportionate impacts to EJ communities should be a concern for this project.

Due to the classification of Duchesne County as a low-income area and the location of the project in Indian country, EPA notes that EJ concerns should be thoroughly evaluated in the EIS for the South Unit Project. As noted in the Draft EIS, human health, economic, and social effects of federal actions on potential EJ communities should be analyzed. The document adequately addresses social and economic concerns, but does not discuss the potential for disproportionately high adverse human health impacts from the proposed project. We recommend that potential human health impacts be added to the discussion in the Final EIS. Oil and gas development frequently results in environmental impacts that could be of particular concern to the health of local residents, most especially with regards to air quality and water quality.

Analysis of environmental justice in the EIS should further include consideration of impacts on subsistence resources for minority or low-income communities. The Draft EIS notes that hunting is a principal recreational use of the project area, especially for elk and deer. The

supplemental analysis should consider whether nearby minority or low-income communities rely on hunting in the project area for subsistence, or explain why their hunting will not be affected by the project.

Potential Wilderness Areas

EPA is concerned with the proposed loss of potential wilderness areas within the project area. As acknowledged in the Draft EIS, continued oil and gas development on Forest Service land nation wide could result in large-scale loss of areas with wilderness potential. The proposed project will contribute to this nationwide scale loss by loss of nearly all areas with wilderness potential within the project area. Consequently, we do not agree with the conclusion in the document that "The Proposed Action should not contribute significantly to cumulative impacts to Potential Wilderness Areas." We request that the Forest Service clarify and explain the grounds for this conclusion in the Final EIS.

Potential wilderness areas possess attributes that are critical to protecting environmental health, including habitat connectivity and watershed protection. Therefore, EPA does not agree with the characterization in the Draft EIS of all project alternatives as having equal impact on potential wilderness areas. While we recognize that a minimum acreage is necessary to manage an area as wilderness, and that any surface-disturbing activities will result in loss of wilderness attributes, we believe that critical environmental attributes can still remain after development. Oil and gas development in potential wilderness areas should consequently be planned and managed to preserve these attributes to the maximum extent practicable. EPA recommends that travel management planning avoid road development in semi-primitive (especially semi-primitive non-motorized) areas wherever possible. We further recommend that well pads be placed outside of these areas wherever directional drilling could feasibly be used to extract their minerals. These measures will aid in preventing habitat fragmentation and preserving ecological processes. In planning the locations of all surface disturbing activities, the Forest Service should additionally consider watershed protection, and avoid construction in drainages, on steep slopes, or in areas of erodible soils. We have discussed watershed protection in detail under "Water Resources" in this letter, but note here that it is of particular importance where development will occur in potential wilderness areas, to preserve their valuable roadless qualities for maintenance of watershed health.

Reclamation Potential

The Draft EIS identifies several potential project-area issues with regards to potential for successful reclamation. We are concerned that 388 acres (47 %) of the soil disturbance associated with the Preferred Alternative will take place in highly erodible soils and/or soils with poor reclamation potential. Biological soil crusts are also identified in the Draft EIS as possibly occurring within the project area, but adequate data needed to estimate impacts is not available. Finally, the high elevation and low annual precipitation in the project area lead to vegetation communities that require many years to return to their self-sustaining state following disturbance. The Draft EIS notes that shrubs and junipers may take 30 to 100 years to reach pre-

disturbance conditions. This extended reclamation period leads to high susceptibility to noxious plant invasion, and increased potential for soil erosion.

EPA is pleased that the Preferred Alternative has been designed to reduce surface disturbance. Particularly, reducing the number of well pads by 60% and co-locating all pipelines in access road ROW will lessen the impacts described above and increase reclamation potential. Prohibiting off-road driving in the project area and closure of all new roads to public travel will also aid reclamation efforts. We further recommend that the recommended and proposed mitigation measures listed in the Draft EIS for reduction of impacts related to soil and vegetation disturbance be required of contractors and noted in the ROD. Travel management in the project area should be designed for maximum reduction in soil and vegetation impacts. Access roads and well pads should be sited to avoid highly erodible soils, biological soil crusts, and sensitive vegetation communities whenever possible. Impacts associated with access roads should be reduced to the maximum extent practicable, by utilizing transportation planning to establish proper road location and design, and using primitive two-track roads where possible.